WE CLAIM:

1. A process for coating a substrate, comprising the steps of:

(a) applying a waterborne base coat composition to a surface of the substrate;

(b) applying infrared radiation at a power density of 1.5-30.0 kW/m^2 and a first air stream simultaneously to the base coat composition such that a pre-dried base coat is formed upon the surface of the substrate; and

(c) applying a second air stream in the absence of infrared radiation to the base coat composition such that a dried base coat is formed upon the surface of the substrate.

2. The process according to claim 1, wherein the solids content of the waterborne base coat composition ranges from 18 to 50 percent by weight, based on the total weight of the base coat composition.

3. The process according to claim 1, further comprising the additional step of:

(d) applying a topcoat composition over the dried base coat.

4. The process according to claim 3, wherein the topcoat composition applied in step (d) is a powder composition.

5. The process according to claim 4, wherein the base coat composition is dried to a solids content of 92 to 98 percent by weight prior to the application of the powder topcoat composition in step (d).

6. The process according to claim 3, wherein the topcoat composition applied in step (d) is a liquid composition.

7. The process according to claim 6, wherein the base coat composition is dried to a solids content of 75-88 percent by weight prior to the application of the liquid topcoat composition in step (d).

8. The process according to claim 1, wherein the first air stream is applied in step (b) at a temperature of 30-65°C.

9. The process according to claim 1, wherein the substrate is metal and during step (b) a first temperature of the substrate is increased at a first rate ranging from 0.05°C per second to 0.6°C per second to achieve a first peak metal temperature ranging from 25°C to 60°C.

10. The process according to claim 1, wherein the second air stream is applied in step (c) at a temperature of 35-110°C.

11. The process according to claim 1, wherein the substrate is metal and during step (c) a second temperature of the substrate is increased at a second rate ranging from 0.1°C per second to 0.6°C per second to achieve a second peak metal temperature ranging from 36°C to 70°C.

12. The process according to claim 1, wherein the substrate is a metal substrate selected from the group consisting of iron, aluminum, steel, copper, magnesium, zinc, and alloys and combinations thereof.

13. The process according to claim 12, wherein the metal substrate is an automotive body component.

14. The process according to claim 1, wherein the first air stream has a temperature of 37°C to 55°C in step (b).

15. The process according to claim 1, wherein step (b) has a duration of 30 to 90 seconds.

16. The process according to claim 1, wherein the velocity of the first air stream is 0.5 to 5 m/s in step (b).

17. The process according to claim 13, wherein in step (b), the infrared radiation is applied at a power density of 2.5-12.0 kW/m^2 to body panels and at up to 30.0 kW/m^2 to heavy metal rocker areas and hood areas of the automotive body.

18. The process according to claim 1, wherein the infrared radiation is applied at a wavelength of 0.7-20 micrometers in step (b).

19. The process according to claim 18, wherein the infrared radiation is applied at a wavelength of 0.7-4 micrometers in step (b).

20. The process according to claim 1, wherein the second air stream has a temperature of 40°C to 110°C in step (c).

21. The process according to claim 1, wherein step (c) has a duration of 50 to 200 seconds.

22. The process according to claim 1, wherein the velocity of the second air stream is 1.5 to 16.0 m/s in step (c).

23. The process according to claim 9, wherein during step (b) the first temperature of the substrate is increased at a first rate ranging from 0.17°C per second to 0.58°C per second to achieve a first peak metal temperature ranging from 28°C to 55°C.

24. The process according to claim 11, wherein during step (c) the second temperature of the substrate is increased at a second rate ranging from 0.1°C per second to 0.3°C per second to achieve a second peak metal temperature ranging from 39°C to 55°C.

25. The process according to claim 1, further comprising an additional step of applying air having a temperature of 10-35°C to the base coat composition for a period of at least 30 seconds between steps (a) and (b) to volatilize at least a portion of volatile material from the base coat composition, the velocity of the air at the surface of the base coat composition being 1.0 m/s or less.

26. The process according to claim 1, wherein the substrate is metal and the process further comprises an additional step of applying hot air to the dried base coat to achieve a peak metal temperature of 110-150°C for a period of at least six minutes after step (c) such that a cured base coat is formed upon the surface of the metal substrate.

27. The process according to claim 3, further comprising an additional step of cooling the substrate having the dried base coat thereon to a temperature of 20-30°C between steps (c) and (d).

28. The process according to claim 3, further comprising an additional step of curing the topcoat composition after step (d).

29. The process according to claim 3, further comprising an additional step of simultaneously curing the base coat composition and the topcoat composition after step (d).

30. The process according to claim 1, wherein each step of the process occurs in a separate location as part of a continuous process.

31. The process according to claim 1, wherein each step of the process occurs in a single location as part of a batch process.

32. The process according to claim 1, wherein steps (b) and (c) of the process occur in a single location as part of a semi-batch process.

33. A semi-batch process for coating a substrate, comprising the steps of:

(a) in a first location, applying a waterborne base coat composition to a surface of the substrate;

(b) transporting the substrate to a second location and applying infrared radiation at a power density of 1.5-30.0 kW/m^2 and a first air stream simultaneously to the base coat composition for a period of 30 to 60 seconds such that a pre-dried base coat is formed upon the surface of the substrate; and

(c) in the same second location, applying infrared radiation at a power density of 3.0 to 30.0 kW/m^2 and a second air stream simultaneously to the base coat composition for a period of 30 to 90 seconds such that a dried base coat is formed upon the surface of the substrate.

34. The semi-batch process of claim 33, wherein the speed of the first air stream applied in step (b) is in the range of 0.5 to 2.5 m/s.

35. The semi-batch process of claim 33, wherein the speed of the second air stream applied in step (c) is in the range of 4.0 to 16.0 m/s.

36. The semi-batch process of claim 33, wherein the temperature of the air streams applied in steps (b) and (c) is 95-150°F (35-66°C).